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PART C WASTE ANALYSIS PLAN 401 KAR 34:020 Section 4 A copy of the waste analysis plan is required by 34:020 Section 4(2) and, if applicable, 34:020 Section 4(3). The Waste Analysis Plan should describe the procedures used to obtain chemical and physical information and data on the wastes to ensure proper storage, treatment, disposal, and compliance with the Land Disposal Restrictions requirements. At a minimum, the plan should include all the information which must be known to treat, store, or dispose of a waste in accordance with 401 KAR Chapters 34, 36, and 37, and requirements or conditions of a permit issued under Chapter 38.	
C-1 **Introduction:** Provide a general description of the hazardous waste to be managed at the facility. Include the following information for all hazardous waste management units: • the hazardous waste streams managed at the facility • the names of the wastes, waste codes, etc. • the regulatory basis for waste being hazardous • estimate the amount and the percentage of the waste to be managed in the different units • the percentage of waste that will be solid, liquid, or semi-solid and specific gravity • explain how the applicant will ensure compatibility of the above waste with the management unit and inner liner material • for containers, describe how free liquids will be managed • for containers without secondary containment systems, demonstrate, using the Paint Filter Liquids Test (Method 9095 in SW-846), that the waste does not include any free liquids. For **land disposal units** such as waste piles, surface impoundments, and landfills, please provide the additional information: • list 401 KAR 31:170 constituents present • state moisture content of waste (except surface impoundments) • estimate the leachate generation rate (except surface impoundments) • discuss the compatibility of liner(s) and waste/leachate • discuss the potential for mobility of hazardous constituents(s) through liner • fluid conductivity (hydraulic, leachate, organic) • vapor pressure of hazardous constituents (except landfills) • If the facility utilizes hazardous waste surface impoundments, waste piles, or landfills, a description of the procedures used to determine the existence and concentration of 401 KAR 31:170 constituents in any plume of contamination or groundwater must be submitted per 401 KAR 38:100 Section 2	

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For **land treatment units**, provide the following:
• demonstration that the waste can be completely degraded, transformed or immobilized in the treatment zone.
• percent moisture
• specific gravity or bulk density
• pH
• conductivity
• acidity/alkalinity
• TOC
• 401 KAR 31:170 constituents
• identification and concentration of volatile hazardous constituents
• If the facility utilizes hazardous waste land treatment units, a description of the procedures used to determine the existence and concentration of 401 KAR 31:170 constituents in any plume of contamination or groundwater must be submitted. 401 KAR 38:100 Section 2
 	
For **incinerators**, provide the following information in addition to the above listed information for all units:
For each waste or mixture of wastes to be burned, provide the following information:
• Heat value
• Viscosity (liquids)
• Physical form (non-liquids)
• Identification of hazardous organic constituents listed in 401 KAR 31:170
• Approximate quantification of hazardous constituents
• Suggested principal organic hazardous constituents (POHCs)
• chlorine content
• ash content
 	
For **boilers and industrial furnaces**, provide the following:
(A) For each feed stream, including hazardous waste, other fuels, and industrial furnace feed stocks, as fired:
• Heating value
• Levels of antimony, arsenic, barium, beryllium, cadmium, chromium, lead, mercury, silver, thallium, total chlorine/chloride, and ash.
• PCBs and radioactive material
• description of the physical form of the feed stream including viscosity, pH, density, and water content
(B) For each hazardous waste, as-fired:
• Identification of 401 KAR 31:170 constituents that would reasonably be expected in the feed.
• Approximate quantification of the hazardous constituents identified.
• If blending is to occur prior to firing:
  • Detailed analysis of the hazardous waste prior to blending and of the material with which it is blended.
  • Blending ratios.
  • Description of blending procedures	

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C-2 <u>Waste Characterization</u> 401 KAR 38:090 Section 2(3) and 34:020 Section 4
 	
Facilities that do not accept waste generated off-site may skip C-2a and C-2b.
 	
C-2a <u>Pre-Acceptance Phase</u> 401 KAR 34:020 Section 4(3)
• Waste analysis information provided by the generator (include a copy of the waste profile form)
• Sampling and analysis procedures
  • parameters chosen for analysis and an explanation of the rationale for their selection per 401 KAR 34:020, Section 4(2)(a)
  • specific sampling methods used to obtain a representative sample of each waste to be analyzed per 401 KAR 34:020, Section 4(2)(c), and 31:100
  • specific test methods for the parameters chosen per 401 KAR 34:020 Section 4(2)(b) and 31:120
  • number of samples/sampling events
• Evaluation/acceptance criteria
• record keeping and frequency of re-testing/re-certification
 	
C-2b <u>Acceptance Phase</u> 401 KAR 34:020 Section 4(3)
• Acceptance criteria
• Fingerprinting procedures
• Sampling and analysis procedures
  • parameters chosen for analysis and an explanation of the rationale for their selection per 401 KAR 34:020, Section 4(2)(a)
  • specific sampling methods used to obtain a representative sample of each waste to be analyzed per 401 KAR 34:020, Section 4(2)(c), and 31:100
  • specific test methods for the parameters chosen per 401 KAR 34:020 Section 4(2)(b) and 31:120
  • sampling frequency/number of containers sampled
 	
C-2c <u>Waste Generated On-Site</u> 401 KAR 38:090 Section 2(3) and 34:020 Section 4
• Waste determination
  • generator knowledge (waste codes chosen and rationale for their selection)
  OR
  • sampling and analysis procedures
  • parameters chosen for analysis and an explanation of the rationale for their selection per 401 KAR 34:020, Section 4(2)(a)
  • specific sampling methods used to obtain a representative sample of each waste to be analyzed per 401 KAR 34:020, Section 4(2)(c), and 31:100
  • specific test methods for the parameters chosen per 401 KAR 34:020 Section 4(2)(b) and 31:120
  • frequency at which the analysis will be repeated. The frequency must be sufficient	

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to ensure that the analysis is accurate and up-to-date. (For an on-site facility this will be whenever there is a process change. For an incinerator, this will be as often as required to verify consistency of the waste feed.) (401 KAR 34:020 Section 4(2)(d))	
C-2d Additional Requirements for Facilities Handling Ignitable, Reactive or Incompatible Waste 401 KAR 34:020 Section 4(2)(f) If the facility stores or treats ignitable, reactive, or incompatible waste, a description of methods which will be used to meet the additional waste analysis requirements necessary for complying with the regulatory requirements specified in F-5 of this checklist	
C-2e Additional Requirements Pertaining to Boiler/Industrial Furnace Facilities 401 KAR Section 3(5)(f)3 Feed rate limits for metals, total chlorine and chloride, and ash are established and monitored by knowing the concentration of the constituent (i.e., metals, chlorine/ chloride, and ash) in each feed stream and the flow rate of each feed stream. The owner/operator must submit a methodology for determining all feed rates for which limits must be established. At a minimum, the methodology must describe: • Sampling and analysis methods and frequencies for each constituent. • Procedures for determining mass flow rates for individual constituents from the raw analytical data.	
C-3 Additional Waste Analysis Requirements Pertaining to Land Disposal Restrictions 401 KAR 37:010 Section 7, 34:020 Section 4(1)(a) and (2)(f), 36:020 Section 3(1)(b) 2, and 38:090 Section 2(3)	
C-3a Waste Characteristics 401 KAR 401 KAR 37:010 Section 7 and 34:020 Section 4(1)(a) Analytical data must be submitted by the generator to the owner/operator for each waste treated, stored, or disposed a the facility, or information from knowledge of the waste can be used, to determine if the waste is restricted under the 401 KAR Chapter 37. If generator knowledge is used, all supporting data must be maintained in the operating record.	
C-3a(1) Waste Characteristics: Solvent Wastes and Dioxin-Containing Wastes 37:010 Section 7(1), 37:030 Sections 1 and 2, 34:020 Section 4(1)(a), and 37:100 Section 1 F001-F005 spent solvent wastes are restricted from land disposal under 37:030 Section 1 and F020-F023 and F026-F028 dioxin-containing wastes are prohibited under 37:030 Section 2 unless: • Wastes meet standards in 37:040, or	

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• An exemption has been granted pursuant to 37:010 Section 6, or • An exemption has been granted pursuant to 37:010 Section 5 To determine if a waste is restricted, you must: • Test waste, or an extract developed using the Toxicity Characteristic Leaching Procedure (TCLP), or • Use information from knowledge or chemical and physical characteristics	
C-3a(2) Waste Characteristics-California List Wastes 401 KAR 37:020 Section 4(1)(a), 37:010 Section 7, and 37:030 Section 3 The following wastes are prohibited from land disposal under 37:030 Section 3: • Liquid hazardous wastes with a pH less than or equal to 2.0 • Liquid waste containing PCBs at concentrations greater than or equal to 50 ppm • Liquid hazardous waste that are primarily water and contain HOCs in total concentration greater than or equal to 1,000 mg/l • Non-liquid hazardous wastes containing HOCs in total concentration greater than or equal to 1,000 mg/kg Unless: • An exemption has been granted pursuant to 37:010 Section 6, or • A case-by-case extension to the effective date has been granted pursuant to 37:010 Section 5, or • Wastes meet applicable treatment standards in 37:040 or, where treatment standards are not specified, wastes are in compliance with applicable prohibitions in Chapter 37 To make the determinations: • Use method 9095 (Paint Filter Liquids Test) in SW-846 to determine if waste is a liquid • Initial generator must test waste (not extract or filtrate) in accordance with 31:020 Section 2(a), or use knowledge of the waste to determine if pH is less than or equal to 2.0 • Initial generator of liquid hazardous waste containing PCBs or a liquid or non-liquid hazardous waste containing HOCs must test waste (not extract or filtrate), or use knowledge of waste, to determine if concentration levels meet the prohibitions above	
C-3a(3) Waste Characteristics - First Third Wastes 401 KAR 37:030 Section 4, 34:020 Section 4(1)(a), and 37:010 Section 7	

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Initial generator must test a representative sample of the waste extract or the entire waste, depending on whether the treatment standards are expressed as concentrations in the waste extract or the waste, to determine whether a waste listed in 37:010 Section 10 meets treatment standards set in 37:040 Sections 2 and 5, respectively. If the waste contains constituents exceeding applicable 37:040 levels, waste is prohibited from land disposal unless: • An exemption has been granted pursuant to 37:010 Section 6, or • A case-by-case extension has been granted pursuant to 37:010 Section 5	
C-3b Additional Requirements for Treatment Facilities 401 KAR 37:010 Section 7(2), and 34:020 Section 4(1)(a) Treatment facilities must conduct the following testing: • For wastes with treatment standards expressed as concentrations of waste extract (37:040 Section 2), test treatment residues, or an extract of such residues developed using the TCLP, to assure treatment standards are met. • For wastes with treatment standards expressed as concentrations in the waste 37:040 Section 5 test treatment residues, not an extract of such residues, to assure residues meet applicable standards. • For California list wastes (37:030 Section 3) not subject to 37:040 treatment standards, test treatment residues according to procedures in C-3a(2) to assure residues comply with applicable prohibitions. Not applicable to wastes for which treatment technologies have been specified. If wastes received from an off-site generator, need procedures to assure that treatment is not conducted until required data is provided by the generator.	
C-3c Additional Requirements for Disposal Facilities 401 KAR 37:010 Section 7(3), and 34:020 Section 4(1)(a) If wastes or treatment residues are received from an off-site generator or treatment facility, assure wastes will not be disposed without receipt of proper notice and certification as specified in 37:010 Sections 7(1) and (2). Owner/operator of land disposal facility must: • Test waste, or an extract of the waste or treatment residue developed using TCLP, or • Use methods required by generators under 37:030 Section 3 [C-3a(2)] to assure waste or treatment residues comply with applicable 37:040 treatment standards and all applicable prohibitions in 37:030 Section 3.	

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C-3d Additional Requirements for Surface Impoundments Exempted from Land Restrictions 401 KAR 37:010 Section 4(1), and 34:020 Section 4(2)(g) For surface impoundments exempted from land disposal restrictions under 37:010 Section 4(1), address the following: C-3d(1) Sampling and Analysis of Contents 401 KAR 37:010 Section 4(1)(b), and 34:020 Section 4(2)(g)1 & 2 Procedures and schedule to be followed to sample and test treatment residues to demonstrate compliance with treatment standards or prohibitions. Note that representative samples of the sludge and the supernatant must be tested separately rather than mixed to form homogeneous samples C-3d(2) Annual Removal of Residues 401 KAR 37:010 Section 4(1)(b), and 34:020 Section 4(2)(g)3 Procedures and schedule for removing residues which do not meet applicable treatment standards or prohibitions, do not exhibit a characteristic of hazardous waste, and are not de-listed under 31:060 Section 2. These residues must be removed at least annually. Note that residues may not be placed in any other surface impoundment for subsequent management C-3e Requirements for Land Disposal Facilities With an Approved Exemption or Extension 401 KAR 38:090 Section 2(23) If a case-by-case extension has been approved under 37:010 Section 5 or a petition has been approved under 37:010 Section 6, provide a copy of the Notice of Approval.	